National Institute of Environmental Health Sciences

# A multicounty analysis identifying the populations vulnerable to mortality associated with high ambient temperature in California

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**Year:** 2008
**Journal:** American Journal of Epidemiology. 168 (6): 632-637

**Abstract:**

The association between ambient temperature and mortality has been established worldwide, including the authors' prior study in California. Here, they examined cause-specific mortality, age, race/ethnicity, gender, and educational level to identify subgroups vulnerable to high ambient temperature. They obtained data on nine California counties from May through September of 1999-2003 from the National Climatic Data Center (countywide weather) and the California Department of Health Services (individual mortality). Using a time-stratified case-crossover approach, they obtained county-specific estimates of mortality, which were combined in meta-analyses. A total of 231,676 nonaccidental deaths were included. Each 10 degrees F (approximately 4.7 degrees C) increase in mean daily apparent temperature corresponded to a 2.6% (95% confidence interval (CI): 1.3, 3.9) increase for cardiovascular mortality, with the most significant risk found for ischemic heart disease. Elevated risks were also found for persons at least 65 years of age (2.2%, 95% CI: 0.04, 4.0), infants 1 year of age or less (4.9%, 95% CI: -1.8, 11.6), and the Black racial/ethnic group (4.9%, 95% CI: 2.0, 7.9). No differences were found by gender or educational level. To prevent the mortality associated with ambient temperature, persons with cardiovascular disease, the elderly, infants, and Blacks among others should be targeted.

**Source:** http://dx.doi.org/10.1093/aje/kwn170

## Resource Description

**Exposure :**

weather or climate related pathway by which climate change affects health

Temperature

**Temperature:** Extreme Heat, Fluctuations

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:**

resource focuses on specific location

United States

**Health Impact:** ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Diabetes/Obesity, Respiratory Effect

**Cardiovascular Effect:** Heart Attack, Stroke, Other Cardiovascular Effect

**Cardiovascular Disease (other):** cardiovascular disease mortality

**Respiratory Effect:** Asthma, Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

**Respiratory Condition (other) :** chronic bronchitis; respiratory disease mortality

**Population of Concern:** A focus of content

**Population of Concern:** ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

**Resource Type:** ☑

format or standard characteristic of resource

Research Article

**Timescale:** ☑

time period studied

Time Scale Unspecified